SILICON
CONSULTING ENGINEERS

NO.SC/QC/YRI/2019-20/W8-TN

Date: 22-02-2021

To,
The Executive Engineer,
Yelahanka Division
Bangalore.

"PMC CERTIFICATE AND INSPECTION REPORT"

Dear Sir,

Subject: Regarding Inspection Report for the below mentioned work.

Name of Work: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli

AEE
Executive Engineer
Road Infrastructure, Yelahanka Division)
Bruhat Bengaluru Mahanagara Palike
Bengaluru - 02.

Item No	Description of work	Unit	Qty	Remarks
1	Removing and refixing stone slabs of drains and pointing in CM (1:3) with all lead and lift and as per the direction of Engineer in charge	Sqm	618.915	Work done upto the Billed Quantity and the Quality is Satisfactory
2	KSRRB 300-1. Earthwork excavation by manual means for roads, drains & similar works in ordinary soil excavated surface levelled and sides neatly dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specifications with all lead and lift and as per the direction	Cum	215.17	Work done upto the Billed Quantity and the Quality is Satisfactory
3	Providing granite slabs of selected quality roughly dressed and fixed in cement mortar (1:6) including fixing curing etc., complete with all lead and lift and as per the direction of Engineer in charge	Sqm	60.56	Work done upto the Billed Quantity and the Quality is Satisfactory
4	KSRRB M300-14. Excavation for roadwork in all types of soil by mechanical means including cutting and loading to tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transportation with a lead of 6.00 km and complete as per specifications	Cum	745.50	Work done upto the Billed Quantity and the Quality is Satisfactory
5	Construction of granular sub-base Grading-V as Sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite/trap/basalt material, mixing by mix in place method by rotavator at OMC,spreading in uniform layers with motor grader on prepared surface and compacting with	Cum	333.50	Work done upto the Billed Quantity and the Quality is Satisfactory
6	KSRRB M400-17. Providing, laying, spreading and compacting cushed stone aggregates of granite / trap / basalt to wet mix macadam specifications including pre mixing the material with water at OMC in mechanical mix plant carriage of mixed materials by tipper to site, laying in uniform layers with	Cum	482.70	Work done upto the Billed Quantity and the Quality is Satisfactory
7	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kglsqm using mechanical means complete as per specifications with all lead	Sqm	2149.995	Work done upto the Billed Quantity and the Quality is Satisfactory
8	KSRRB M500-6. Providing and applying primer coat with S.S. bitumen emulsion on prepared surface of granular base such as WMM including cleaning of road surface and spraying primer at the rate of 0.60 kg / sqm using mechanical means complete as per specifications.	Sqm	774.47	Work done upto the Billed Quantity and the Quality is Satisfactory
9	KSRRB 500-2. Cleaning the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatment including cost of all materials, labour, HOM complete as per specifications with all lead and lift and as per the direction	Sqm	1373.99	Work done upto the Billed Quantity and the Quality is Satisfactory

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Item No	Description of work	Unit	Qty	Remarks
10	KSRRB 500-7. Providing and applying tack coat using 80/100 grade bitumen(VG10) on the prepared black topped surfaces at 2.5 kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM complete as per	Sqm	4647.16	Work done upto the Billed Quantity and the Quality is Satisfactory
11	KSRRB M500-17. Providing and laying dense graded bituminous macadam using crushed aggregates of specified grading, premixed with VG30 grade bituminous binder and, transporting the hot mix to work site, laying to the required grade, level and alignment, rolling with smooth wheeled, vibratory	Cum	127.67	Work done upto the Billed Quantity and the Quality is Satisfactory
12	Providing and laying bituminous concrete 40mm thick with hot mix plant, using crushed aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site, laying with a paver finisher to the required grade, level and alignment, rolling with smooth	Cum	165.86	Work done upto the Billed Quantity and the Quality is Satisfactory
13	KSRRB M800-13.Road Marking with Hot Applied Thermoplastic Compound with Reflectrising Glass Beads on Bituminous Surface/ Concrete Surface: Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5	Sqm	304.65	Work done upto the Billed Quantity and the Quality is Satisfactory
14	KSRRB M800-35. Supply and Installtion of Moulded Shank Raised Pavement Markers made of polycarbonate and ABS(Acrylonitrile Butadiene Styrene) moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall	Nos	120.00	Work done upto the Billed Quantity and the Quality is Satisfactory

With respect to the above subject & name of the work, we have inspected the work and the Quantity and Quality of above mentioned items of the work was found to be completed satisfactorily for the

Thanking you,

With Regards,

For Silicon Consulting Engineers

SILICON CONSULTING ENGINEERS

Assistant Executive Engineer
Road Infrastructure, (Yelahanka Division)
Bruhat Bengaluru Mahanagara Palike
Bengaluru - 92.

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NO.SC/QC/YRI/2019-20/W8-TN

Date: 22-02-2021

To,
The Executive Engineer,
RI,Yelahanka Division,
Bangalore.

"FREQUENCY AND QUALITY REPORT"

Dear Sir,

Subject: Regarding Quality Report for the below mentioned work.

Name of Work: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli

Item No	Description of work	Unit	Qty	No of Samples Tested	Standards
1	Construction of granular sub-base Grading-V as Sub-base and drainage layer by providing	Cum	333.50	1	Per 400 cum
2	KSRRB M400-17. Providing, laying, spreading and compacting cushed stone aggregates of	Cum	482.70	3	Per 200 cum
3	KSRRB M500-17. Providing and laying dense graded bituminous macadam using crushed	Cum	127.67	3	Per 100 cum
4	Providing and laying bituminous concrete 40mm thick with hot mix plant, using	Cum	165.86	4	Per 100 cum

With respect to the above subject & name of the work, we have tested the materials and the Quantity of above mentioned items of the work was found to be completed satisfactorily for the 2nd and Final bill

Thanking you,

With Regards,

For Silicon Consulting Engineers

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SC/QC/YRI/20-21/W8-TN-GSB1 Date: 05-01-2021

TEST REPORT ON GRANULAR SUBBASE MIX
(GRADATION TEST)

Sub: To conduct tests on GSB (Grade-V) mix.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

1. **Gradation Test:**
TABLE 1.1

Sieve Size mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Specified Limits as per MoRTH Specifications, V Revision-2013
75.00	**100.00**	100
53.00	**96.45**	80-100
26.50	**82.60**	55-90
9.50	**56.15**	35-65
4.75	**43.05**	25-50
2.36	**17.25**	10-20
0.85	**8.50**	2-10
0.425	**3.05**	0-5

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Manjunatha Kids Clinic Rd

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Date: 05-01-2021

TABLE 1.2

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS:383-1970 & M.o.R.T.H Specification, V Revision -2013.
1.	Water absorption, %	**0.42 %**	Not more than 2.0 %
2.	Liquid Limit, %	**18.36**	Not more than 25.0 %
3.	Plasticity Index, %	**NP**	Not more than 6.0 %
4.	Moisture Content, %	**6.45**	----------
5.	Aggregate Impact Value, %	**28.76**	Not more than 40.00 %

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Manjunatha Kids Clinic Rd

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SC/QC/YRI/20-21/W8-TN-W1 **Date: 07-01-2021**

TEST REPORT ON WET MIX MACADAM MIX

(GRADATION TEST)

Sub: To conduct Gradation test on Wet Mix Macadam (WMM) Mix.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

1. Gradation Test:

TABLE 1.1

Sieve Size mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Specified Limits as per MoRTH Specifications, V Revision-2013
53.00	**100.00**	100
45.00	**97.15**	95-100
26.50	**---**	-
22.40	**79.25**	60-80
11.20	**53.40**	40-60
4.75	**36.15**	25-40
2.36	**24.60**	15-30
0.600	**19.35**	8-22
0.075	**3.85**	0-5

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : K M Narayanappa house Road

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Date: 07-01-2021

TABLE 1.2

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS:383-1970 & M.o.R.T.H Specification, V Revision -2013.
1.	Aggregate Impact Value	**27.86%**	Not more than 30.00 %
2.	Combined Flakiness and Elongation index, %	**28.34%**	Not more than 35.0 %
3.	Water absorption, %	**0.42 %**	Not more than 2.0 %
4.	Plasticity Index, %	**NP**	Not more than 6.0 %

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : K M Narayanappa house Road

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SC/QC/YRI/20-21/W8-TN-W2 **Date: 11-01-2021**

TEST REPORT ON WET MIX MACADAM MIX

(GRADATION TEST)

Sub: To conduct Gradation test on Wet Mix Macadam (WMM) Mix.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

1. Gradation Test:

TABLE 1.1

Sieve Size mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Specified Limits as per MoRTH Specifications, V Revision-2013
53.00	**100.00**	100
45.00	**94.35**	95-100
26.50	**---**	-
22.40	**74.15**	60-80
11.20	**52.10**	40-60
4.75	**36.45**	25-40
2.36	**26.70**	15-30
0.600	**18.05**	8-22
0.075	**3.45**	0-5

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Vasudha Heights Appartment

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Assistant Executive Engineer
Road Infrastructure, Yelahanka Division
Bruhat Bangalore Mahanagara Palike
Bengaluru - 92.

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Date: 11-01-2021

TABLE 1.2

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS:383-1970 & M.o.R.T.H Specification, V Revision -2013.
1.	Aggregate Impact Value	**27.54%**	Not more than 30.00 %
2.	Combined Flakiness and Elongation index, %	**28.65 %**	Not more than 35.0 %
3.	Water absorption, %	**0.42 %**	Not more than 2.0 %
4.	Plasticity Index, %	**NP**	Not more than 6.0 %

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Vasudha Heights Appartment

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Assistant Executive Engineer
Road Infrastructure Division, Yelahanka Division)
Bruhat Bengaluru Mahanagara Palike
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SC/QC/YRI/20-21/W8-TN-W3

Date: 13-01-2021

TEST REPORT ON WET MIX MACADAM MIX

(GRADATION TEST)

Sub: To conduct Gradation test on Wet Mix Macadam (WMM) Mix.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

1. Gradation Test:

TABLE 1.1

Sieve Size mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Specified Limits as per MoRTH Specifications, V Revision-2013
53.00	**100.00**	100
45.00	**98.40**	95-100
26.50	**---**	-
22.40	**71.15**	60-80
11.20	**53.25**	40-60
4.75	**32.65**	25-40
2.36	**24.95**	15-30
0.600	**18.30**	8-22
0.075	**4.15**	0-5

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Vinayaka house Rd

AE

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Road Infrastructure, Yelahanka Division)
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SC/QC/YRI/20-21/W8-TN-BD1 **Date: 30-01-2021**

1. TEST REPORT ON BITUMEN SAMPLE:

Sub: Testing of Bitumen sample VG-30 Grade.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.
Technical Reference: Ministry of Road Transport and Highways, V Revision, 2013 and IS 73: 1992.

TABLE 1.1 ;

SL No	Details	Test Results	Requirements as per I.S 73 –1992 Specifications
1.	Penetration at 25^0 C	**52.60^0 C**	Min. 45
2.	Ductility Value at 25^0 C	**107.90 cm**	40
3.	Flash point	**246^0 C**	Minimum 220^0 C
4.	Softening point	**51.20^0 C**	Min. 47

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Venkateshwara house road

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Assistant Executive Engineer
Road Infrastructure / Yelahanka Division
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SC/QC/YRI/20-21/W8-TN-CD1 **Date: 30-01-2021**

1. TEST REPORT ON COARSE AGGREGATE:

Sub: Testing of Coarse Aggregate used in Dense Graded Bituminous Macadam.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TABLE 1.1 ;

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS:383-1970 & M.o.R.T.H Specification, V Revision -2013.
1.	Aggregate Impact Value	**23.09%**	Not more than 27.00 % for DBM
2.	Combined Flakiness and Elongation index, %	**26.74%**	Not more than 35.0 %
3.	Water absorption, %	**0.42%**	Not more than 2.0 %
4.	Specific gravity	**2.62**	-------
5.	Soundness	**6.89 %**	Max. 12 % in Sodium Sulphate

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Venkateshwara house road

AE

Assistant Executive Engineer
Road Infrastructure, (Yelahanka Division
BBMP, Yelahanka, Nanagara Palike
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SC/QC/YRI/20-21/W8-TN-DBM1 **Date: 03-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.52 %**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	**100**	100
26.5	**96.25**	90-100
19.0	**81.15**	71-95
13.20	**74.40**	56-80
4.75	**48.70**	38-54
2.36	**36.05**	28-42
0.300	**17.90**	7-21
0.075	**6.40**	2-8

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Venkateshwara house road

AE

Assistant Executive Engineer
Road Infrastructure, Yelahanka Division
Bruhat Bengaluru Mahanagara Palike
Bengaluru - 92

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SC/QC/YRI/20-21/W8-TN-DS1 **Date: 03-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (IV Revision)-2001 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1238**	900
2	Marshall Flow at 60°C, mm.	**3.24**	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Venkateshwara house road

SILICON CONSULTING ENGINEERS

AE

Assistant Executive Engineer
Road Infrastructure, (Yelahanka Division)
Bruhat Bengaluru Mahanagara Palike
Bengaluru-92.

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SC/QC/YRI/20-21/W8-TN-DBM2 **Date: 03-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.53 %**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	**100**	100
26.5	**96.45**	90-100
19.0	**80.55**	71-95
13.20	**72.60**	56-80
4.75	**47.10**	38-54
2.36	**35.80**	28-42
0.300	**18.25**	7-21
0.075	**5.15**	2-8

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : SLN Annugraha House road

SILICON CONSULTING ENGINEERS

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Assistant Executive Engineer
Road Infrastructure (Yelahanka Division)
Bruhat Bengaluru Mahanagara Palika
Bengaluru - 02.

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SC/QC/YRI/20-21/W8-TN-DS2 Date: 03-02-2021

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (IV Revision)-2001 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1256**	900
2	Marshall Flow at 60°C, mm.	**3.44**	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : SLN Annugraha House road

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Road Infrastructure (Yelahanka Division)
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SC/QC/YRI/20-21/W8-TN-DBM3 **Date: 04-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.54 %**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	**100**	100
26.5	**97.15**	90-100
19.0	**82.15**	71-95
13.20	**71.40**	56-80
4.75	**48.70**	38-54
2.36	**32.05**	28-42
0.300	**18.90**	7-21
0.075	**6.55**	2-8

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Vasudha Heights Appartment

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Assistant Executive Engineer
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SC/QC/YRI/20-21/W8-TN-DS3 Date: 04-02-2021

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (IV Revision)-2001 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1256**	900
2	Marshall Flow at 60°C, mm.	**3.40**	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Vasudha Heights Appartment

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SC/QC/YRI/20-21/W8-TN-BB1 **Date: 01-02-2021**

1. TEST REPORT ON BITUMEN SAMPLE:

Sub: Testing of Bitumen sample VG-30 Grade.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.
Technical Reference: Ministry of Road Transport and Highways, V Revision, 2013 and IS 73: 1992.

TABLE 1.1 ;

SL No	Details	Test Results	Requirements as per I.S 73 –1992 Specifications
1.	Penetration at 25^0 C	**51.20^0 C**	Min. 45
2.	Ductility Value at 25^0 C	**108.0 cm**	40
3.	Flash point	**239^0 C**	Minimum 220^0 C
4.	Softening point	**50.60^0 C**	Min. 47

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : K M Narayanappa house Road

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SC/QC/YRI/20-21/W8-TN-CB1 **Date: 01-02-2021**

1. TEST REPORT ON COARSE AGGREGATE:

Sub: Testing of Coarse Aggregate used in Bituminous Concrete.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TABLE 1.1 ;

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS:383-1970 & M.o.R.T.H Specification, V Revision -2013.
1.	Aggregate Impact Value	**22.84 %**	Not more than 24.00 %
2.	Combined Flakiness and Elongation index, %	**27.56 %**	Not more than 35.0 %
3.	Water absorption, %	**0.42%**	Not more than 2.0 %
4.	Specific gravity	**2.62**	-------
5.	Soundness	**5.39%**	Max. 12 % in Sodium Sulphate

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Venkateshwara house road

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SC/QC/YRI/20-21/W8-TN-BC1 **Date: 05-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for BC mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

A. Type of Construction : **Bituminous Concrete**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.41 %**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specfications-2013 BC (Grading - 2)
19.0	**100**	100
13.2	**97.25**	90-100
9.5	**82.10**	70-88
4.75	**65.50**	53-71
2.36	**52.70**	42-58
1.18	**40.35**	34-48
0.600	**34.75**	26-38
0.300	**23.60**	18-28
0.150	**18.25**	12-20
0.075	**7.15**	4-10

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Venkateshwara house road

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SC/QC/YRI/20-21/W8-TN-BS1 **Date: 05-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for BC mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

Table 1: Properties of BC (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Bituminous Concrete, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1368**	900
2	Marshall Flow at 60°C, mm.	**3.56**	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Venkateshwara house road

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SC/QC/YRI/20-21/W8-TN-BC2 **Date: 05-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for BC mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

A. Type of Construction : **Bituminous Concrete**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.42%**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specfications-2013 BC (Grading - 2)
19.0	**100**	100
13.2	**95.25**	90-100
9.5	**84.10**	70-88
4.75	**67.45**	53-71
2.36	**53.80**	42-58
1.18	**41.70**	34-48
0.600	**33.50**	26-38
0.300	**25.60**	18-28
0.150	**17.25**	12-20
0.075	**8.40**	4-10

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Vinayaka house Rd

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SC/QC/YRI/20-21/W8-TN-BS2 **Date: 05-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for BC mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

Table 1: Properties of BC (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Bituminous Concrete, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1352**	900
2	Marshall Flow at 60°C, mm.	**3.44**	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Vinayaka house Rd

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SC/QC/YRI/20-21/W8-TN-BC3 **Date: 06-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for BC mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

A. Type of Construction : **Bituminous Concrete**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.43 %**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specfications-2013 BC (Grading - 2)
19.0	**100**	100
13.2	**96.70**	90-100
9.5	**82.30**	70-88
4.75	**67.95**	53-71
2.36	**53.40**	42-58
1.18	**43.70**	34-48
0.600	**32.05**	26-38
0.300	**24.35**	18-28
0.150	**18.75**	12-20
0.075	**7.60**	4-10

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Manjunatha Kids Clinic Rd

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SC/QC/YRI/20-21/W8-TN-BS3 Date: 06-02-2021

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for BC mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

Table 1: Properties of BC (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Bituminous Concrete, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	1348	900
2	Marshall Flow at 60°C, mm.	3.36	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Manjunatha Kids Clinic Rd

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SC/QC/YRI/20-21/W8-TN-BC4 **Date: 06-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for BC mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

A. Type of Construction : **Bituminous Concrete**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.42 %**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specfications-2013 BC (Grading - 2)
19.0	**100**	100
13.2	**95.05**	90-100
9.5	**81.45**	70-88
4.75	**65.95**	53-71
2.36	**52.25**	42-58
1.18	**44.70**	34-48
0.600	**30.30**	26-38
0.300	**24.90**	18-28
0.150	**18.60**	12-20
0.075	**7.15**	4-10

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Vasudha Heights Appartment

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SC/QC/YRI/20-21/W8-TN-BS4 **Date: 06-02-2021**

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for BC mix sample.
{Project*: Repair and Improvements to roads and drains and footpaths of Tatanagar Main Road in ward no. 08 Kodigehalli.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
RI,Yelahanka Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: M/s KRIDL, Bangalore.

TEST RESULTS

Table 1: Properties of BC (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Bituminous Concrete, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1362**	900
2	Marshall Flow at 60°C, mm.	**3.50**	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Vasudha Heights Appartment

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